

Winfield Pumper Drafts Through 100-feet of 6-inch Suction Hose Using New Air Primer

By President Mark Davis

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On July 31st, the folks at the Winfield VFD (Carroll County, Maryland) put the new automatic air primer to test on their Engine 142 when they attempted to draft through 100-feet of 6-inch suction hose.

The automatic air primer is from Trident Emergency Products and is the first automatic air primer installed on a pumper in the U.S.A Engine 142 is a 2007 pumper built by 4-Guys Firetrucks and is equipped with a Hale QMax fire pump. The folks at Winfield had the electric, rotary vane primary removed and had it replaced with the automatic air primer on July 26th.

After a few days of training, they decided to give the air primer a "real" test so they decided to try and draft through all of the suction hose owned by the FD - which amounted to 100-feet of 6-inch, lightweight suction hose.

The crews conducted a couple of tests - the first of which involved using a dry fire hydrant. The 100-ft of suction hose was connected to the suction head and the pumper, and a 4-inch discharge line was connected to the pumper's high-flow discharge. A HoseMonster flow diffuser was used to accurately measure the flow on the discharge line.

The first test resulted in a priming time of 2:40 minutes from primer activation to discharge pressure showing at the pump. A flow of 791 gpm was obtained.

A significant air leak was found at the suction head so a second test was conducted using a floating suction strainer in lieu of the dry hydrant. The second test resulted in an even faster priming time of 1:53 minutes from primer activation to discharge pressure showing at the pump. A flow of 1,012 gpm was obtained.

The lift for both tests was under 10-ft.

The automatic air primer has no moving parts and has the ability to automatically engage when a loss of prime begins to occur. The "100-ft" suction hose test showed the ability of the primer to run for extended periods of time without worry about damage to the primary as usually found with a traditional, rotary vane electric primer.

We will post the complete test findings at a later date.

The folks at the Winfield VFD have been a long-time supporter of rural water supply operations in Central Maryland and we thank them for sharing their findings with us.



Winfield VFD E142 drafts through 100-feet of 6-inch suction hose using its new, automatic air primer.



Members work to lay out and connect the 100 feet of suction hose.



All set up and ready to draft. The hydrant in the foreground is an out of service hydrant.



In addition to the 100 feet of suction hose, the dry fire hydrant added about another 10 feet of 6-inch pipe from which air had to be evacuated.



A HoseMonster flow diffuser with built-in pitot was used to measure the flow.



The flow measurement set-up.



On your mark! Get set! Prime!



Test #1 = 2:40 minutes - prime to pump pressure time!



791 gpm



Test #2 - a floating suction strainer was used in lieu of the dry fire hydrant because of an air leak in the head.



The length was still 100 feet.



Ready - set- prime again!



Water was about half way to the pump at the 51 sec mark.



The pump is primed in 1:53 minutes!



1,012 gpm!!!